

CLASSIFICATION **CONFIDENTIAL**
 CENTRAL INTELLIGENCE AGENCY
 INFORMATION FROM
 FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

COUNTRY USSR
 SUBJECT Scientific - Chemistry
 HOW PUBLISHED Monthly periodical
 WHERE PUBLISHED Moscow/Leningrad
 DATE PUBLISHED Sep 1949
 LANGUAGE Russian

DATE OF INFORMATION 1949

DATE DIST. // Jan 1950.

NO. OF PAGES 3

SUPPLEMENT TO
 REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 80 U. S. C. 91 AND 92, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

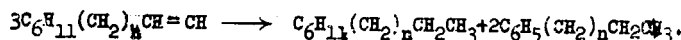
THIS IS UNEVALUATED INFORMATION

SOURCE Zhurnal Obshchey Khimii, Vol XIX, No 9, 1949.

RESEARCH IN THE DECALIN SERIES; V. IRREVERSIBLE CATALYSIS
 OF DECALIN HYDROCARBONS WITH UNSATURATED SIDE CHAINS

R. Ya. Levina, S. G. Kulikov
 Lab of Org Chem imeni N. D. Zelinskiy
 Moscow Order of Lenin State Univ

As shown in previous articles (1), cyclohexane hydrocarbons with unsaturated side chains, under the effect of palladium at 200 degrees centigrade in a weak current of carbon dioxide, undergo irreversible transformations of the type described by N. D. Zelinskiy (2). The catalyzates are a mixture of aromatic and cyclohexane hydrocarbons with corresponding saturated side chains:



Contact conversions of decalin hydrocarbons with unsaturated side chains containing a double bond spaced at different intervals from the ring were investigated in this article. Two problems were considered: (1) whether the decalin hydrocarbons under conditions of irreversible catalysis behave like cyclohexane hydrocarbons with similar side chains and (2) whether, in the catalytic process, the distance of the double bond from the ring and the stereochemical structure of the bicyclic decalin derivative has any influence.

To solve these problems, stereoisomeric beta-allyldecalines (3-beta-cis-decalylpropene-1 and 3-beta-trans-decalylpropene-1) and beta-decalylbutenes 9(4-beta-cis-decalylbutene-1 and 4-beta-trans-decalylbutene-1) were brought into contact with platinized carbon; and it was shown that both beta-allyldecalines were completely converted (none of the original unsaturated hydrocarbons were found in a bromine water test of the catalyzates).

If the dehydrogenation during irreversible catalysis had involved only one of the rings of the original bicyclic hydrocarbon, the catalyzate would have contained tetralin and decalin hydrocarbons in the ratio of 1:2; with both rings involved, the catalyzate would contain naphthalene and decalin hydrocarbons in the ratio of 1:4.

- 1 -

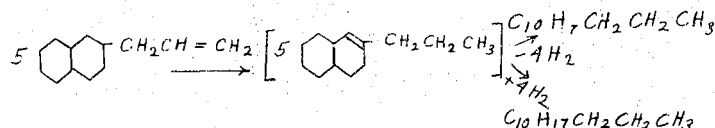
CONFIDENTIAL

CLASSIFICATION		CONFIDENTIAL		DISTRIBUTION															
STATE	<input checked="" type="checkbox"/>	NAVY	<input checked="" type="checkbox"/>	NSRB															
ARMY	<input checked="" type="checkbox"/>	AIR	<input checked="" type="checkbox"/>	FBI															

CONFIDENTIAL

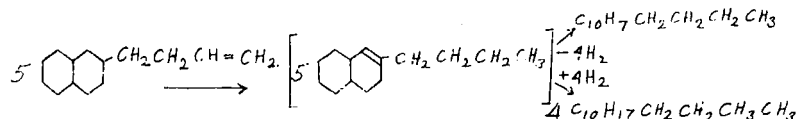
50X1-HUM

Results obtained on treating the catalyzates with sulfuric acid showed that, according to the amount of hydrocarbon reacted with sulfuric acid, the process of irreversible catalysis of both stereoisomeric beta-allyldecalines proceeded in the second manner.

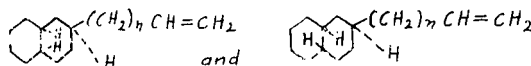


As seen from the above formula, the first stage of the reaction is contact isomerization (4) of the original beta-allyldecalines into beta-propyloctalines (cis and trans), which undergo further catalysis to form a mixture of beta-propylnaphthalene and corresponding beta-propyldecalines (cis and trans) in similar fashion to the process used for (3) trans-octaline, which is easily converted with palladium into a mixture of naphthalene and trans-decalin.

Should the double bond be farther removed from the ring than is the case with the beta-allyldecalines, the process is still not affected thereby. 4-beta-decalylbutenes (cis and trans) are completely converted to form beta-butylnaphthalene and corresponding beta-butyldecalines (cis and trans):



Experiments described in this article demonstrate that the stereoisomeric (cis and trans) hydrocarbons of the decalin series



do not differ from each other with respect to the irreversible catalysis.

BIBLIOGRAPHY

1. R. Ya. Levina and coworker, ZhOKh, Vol 4, p 1250 (1934) and Vol 9, p 825 (1939); Vol 7, p 353 (1937); Vol 6, p 764 (1936); Vol 7, p 1866 (1937); Vol 8, p 1776 (1938)
2. N. D. Zelinskiy and G. S. Pavlov, Ber., Vol 57, p 1066 (1924)
3. M. B. Turova-Polyak, Uch. zap. MGU, Vol 3, p 193 (1934)
4. R. Ya. Levina, ZhOKh, Vol 12, p 422 (1942)
5. R. Ya. Levina and S. G. Kulikov, ZhOKh, Vol 10, p 1189 (1940)
6. N. M. Kizhner and G. G. Vendel'shteyn, ZhOKh, Vol 57, p 1 (1925)

- 2 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

7. R. Ya. Levina and S. G. Kulikov, ZhOFh, Vol 17, p 1189 (1947)
8. H. Fritzsche, Liev. Ann., Vol 109, p 248, (1859)
9. K. Auwers and F. Krollpfeiffer, Lieb. Ann., Vol 430, p 230 (1923)
10. N. A. Orlov, Ber., Vol 60, p 1950 (1927)
11. A. D. Petrov, A. P. Meshcheryakov, and Andreyev, ZhPKh, Vol 19, p 705 (1946)
12. R. Ya. Levina, L. Ye. Karelova, and I. A. El'yashberg, ZhOKh, Vol 10, p 913 (1940)

- E N D -

- 3 -

CONFIDENTIAL

CONFIDENTIAL